

WHAT IS CLAIMED IS:

1. A method for transporting material between various locations on a factory floor, said method

5 comprising:

moving a rail mounted vehicle proximate to a first location;

actuating a material handling mechanism to deploy a handling device for grasping material to be

10 transported; and

moving said material from said first location to a second location.

2. The method of Claim 1, wherein said material
15 handling mechanism has a first extendible portion and a second extendible portion, said first extendible portion being horizontally moveable between an extended position and a non-extended position; and said second extendible portion being vertically moveable between a
20 raised position and a lowered position.

3. The method of Claim 1, wherein said rail
mounted vehicle comprises a communications system and a system controller, said method further comprising
25 providing bi-directional communication between said system controller and said vehicle assembly.

4. The method of Claim 3, wherein said communications system is taken from the group consisting of an infrared (IR) link and a radio
5 frequency (RF) link.

5. The method of Claim 1, wherein said rail mounted vehicle is translatable over an overhead rail system.

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6. A method for carrying payloads between processing tools in a factory comprising:

providing a carrier coupled to an overhead rail system;

15 horizontally extending a first mechanism mounted on said carrier; and

vertically extending a second mechanism mounted on said carrier;

grasping a payload; and

20 transporting said payload from a first location to a second location along said overhead rail system.

7. The method of Claim 6, wherein said first mechanism comprises an external member and an internal
25 member operatively coupled to each other and said

carrier, wherein said external member and said carrier are configured to move relative to said internal member in opposite directions to cause said second mechanism to move away from a center of said support frame.

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8. The method of Claim 6, wherein said second mechanism comprises a plurality of slidably engaged members, wherein said slidably engaged members provide a rigid positional platform when vertically extended.

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9. The method of Claim 7, wherein said second mechanism comprises a gripper assembly.

10. The method of Claim 6, wherein grasping the payload comprises:

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actuating a gripper mechanism to grasp said payload; and

raising said gripper mechanism to move said payload to be in contact with a gripper housing.

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11. The method of Claim 10, further comprising depressing a trigger mechanism to cause said gripper mechanism to release said payload.

12. The method of Claim 10, further comprising depressing a trigger mechanism to cause said gripper mechanism to hold said payload.

5 13. The method of Claim 6, wherein said payload is a semiconductor chip magazine.

10 14. The method of Claim 6, wherein said first mechanism is horizontally slidable between an extended position and a non extended position; and said second mechanism is vertically slidable between a raised position and a lowered position.

15 15. A method for transporting materials comprising:

moving a vehicle assembly along an overhead rail system to a position proximate to a target location;

horizontally extending an extendible member assembly to position a hoist assembly over said target
20 location; and

vertically extending said hoist assembly for picking-up or placing a payload at said target location.

16. The method of Claim 15, wherein horizontally extending an extendible member assembly comprises rotating said extendible member assembly to orient said hoist assembly over said target location.

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17. The method of Claim 15, wherein said hoist assembly comprises a plurality of slidably engaged members.

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18. The method of Claim 17, wherein vertically extending said hoist assembly comprises spooling a belt to allow said slidably engaged members to slide relative to each other in the vertical direction.

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19. The method of Claim 15, wherein vertically extending said hoist assembly comprises positioning a gripper assembly proximate to said payload to pick up said payload from said target location.

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20. The method of Claim 15, wherein vertically extending said hoist assembly comprises positioning a gripper assembly proximate to said payload to place said payload at said target location.

21. The method of Claim 15, wherein said payload is a semiconductor chip magazine.

22. The method of Claim 15 further comprising
5 grasping said payload and transporting said payload from a first position to a second position.

23. The method of Claim 22, further comprising
placing said payload in a storage unit during said
10 transporting.

24. The method of Claim 15, wherein vertically
extending said hoist assembly comprises picking up or
placing said payload into a chute loader positioned on
15 a processing tool.